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ABSTRACT

The primary purpose of this publication is to introduce the reader to the background, framework, and central characteristics of Michigan's master plan for all environmental communication, education, and information programs. A second purpose of this article is to link the reader to selected theoretical and empirical research literature that provided the foundation for the Michigan model. The central theme is that insight into the way the world works and solutions to its problems may be had only when all the parts of society are fitted back together. The approach described seeks to merge the various components of society and coordinate their environmental communication, education, and information efforts in such a way that these efforts will become responsive and adaptive to new problems and opportunities. (Author/RH)

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STATE PLANNING FOR ENVIRONMENTAL COMMUNICATION AND EDUCATION:

Toward an Organic Model

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(1974)

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> Let us suppose that our policy-making institutions are or become such that they can generate policies equal to our needs. This will often mean, equal to our children's needs; for few important policies today can become effective until ten, twenty, or even thirty years after the date when the search for them first begins.
>
> --Sir Geoffrey Vickers (1968: 121)

Michigan's Environmental Future, the artfully illustrated 92-page statement by a Governor's special task force, fell into the hands of nearly 3,000 key Michigan citizens and national leaders to chart a unique approach to comprehensive educational planning to develop an environmentally literate citizenry.[1] The approach has been described as a holistic, systematic, open-ended, adaptive, organic model for state planning. As used here, planning means a systematic and rational method of solving problems, which usually includes identifying the problem, studying and analyzing it, bringing together the relevant interests in the social system, designing a plan of action, implementing the plan, and monitoring and evaluating the results (Michigan, 1973; Morris and Binstock, 1966).

Michigan's unprecedented planning model involved two years of systematic research and development. The model is solidly based on a set of principles derived from recent research findings not only from the fields of social planning and education, but also from the communication sciences. The plan translates many well-grounded theoretical axioms and propositions into a functional planning model, a state-level program strategy (see Stogdill, 1970).[2] The primary purpose of this article is to introduce the reader to the background, framework, and central characteristics of Michigan's state-level master plan for all environmental communication, education, and information programs.[3] A second purpose of this article is to link the reader to selected theoretical and empirical research literature, which has provided the foundation for the Michigan model.

The central theme of this article is that <u>insight into the way the world works and solutions to its problems may be had only when all the parts of society are fitted back together</u>. The approach described here seeks to <u>merge</u> the various components of society and <u>coordinate</u> their environmental communication, education, and information efforts in such a way that these efforts will become <u>responsive</u> and <u>adaptive</u> to new problems and opportunities.

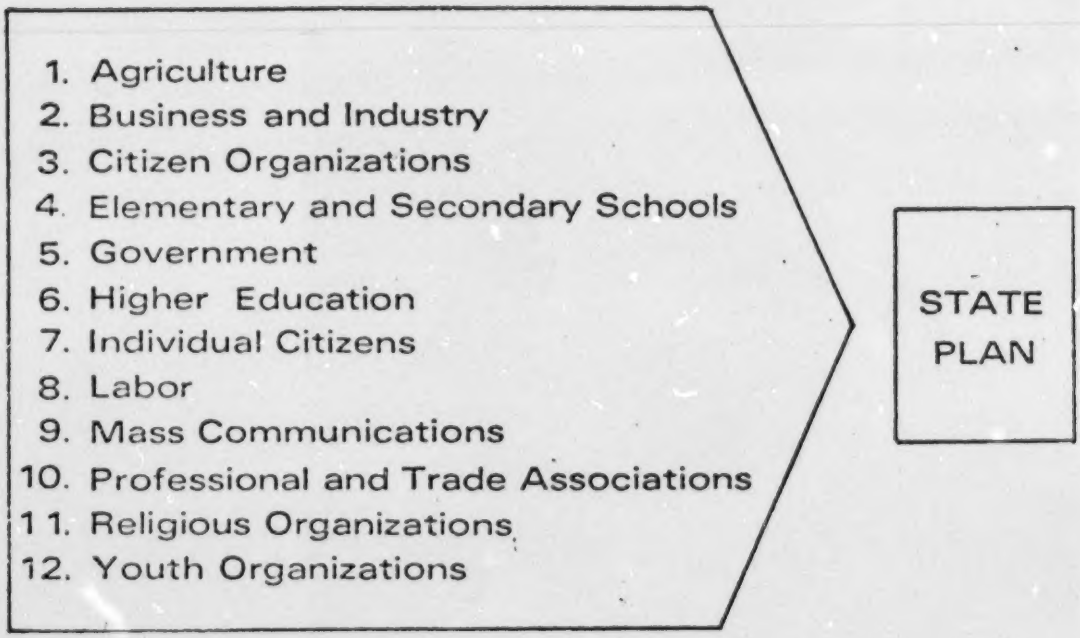
SCOPE AND PURPOSE OF PLANNING

A plan is a heuristic guide, not a formal prescription. A statewide environmental education plan defines a framework, provides guidelines, and describes a process for coordinating and evaluating all environmental communication, education, and information activities throughout the state. The formal structures and processes of school systems as well as non-formal education are included. No environmental education opportunity is ignored. No segment of the population is excluded (see Figure I). Those at home, in school, in youth groups, in business, members of labor and industry, mass media, the professionals--regardless of age, sex, religion, race or socio-economic group --must have an equal opportunity and the responsibility to study, understand and act upon the common environmental education goals. "As the plan suggests," says Don Albrecht, a university student and a member of Michigan's planning task force, "no one in the State escapes being 'educated' about environment, for better or for worse. Many TV commercials and programs are related in one way or another to environmental issues. Students learn lessons about the environment outside the classroom as well as in it. Perhaps their strongest lessons in environmental values come from watching what others do, from the examples set by teachers and parents and other people they respect" (in Horn, 1973c: 12).

INSERT FIGURE I HERE

FIGURE I

COMPONENT GROUPS OF STATE PLAN



The ultimate focus of Michigan's plan is on people and their relationship to their own nearby community (whether urban, suburban, or rural), but the plan necessarily includes state, regional, national, and international relationships (exemplary system relationships are delineated by Laszlo, 1974, and by Falk, 1972).[4] However, some emphasis is given to the environmental concerns of those citizens who are most affected by environmental problems and least organized to correct them.

The State of Michigan's "Program Policy Guidelines" recognize that "an essential component of responsive decision-making is a planning capability. Planning must focus its energy on describing the nature of the society we want to build, identifying the complex problems that must be resolved in order to get there, and searching for alternative means for achieving societal goals. In short, we must begin to look systematically into the future or we will forever grope with the crises of the moment" (Milliken, 1972: 2).

The primary purpose of the plan is to provide long-range direction and coordination for the many independent approaches to environmental education now being taken, and to encourage and guide new and innovative environmental education programs. "Long-range planning does not deal with future decisions. It deals with the futurity of present decisions," emphasizes Peter Drucker (1972: 5).

HOW THE MICHIGAN PLAN WAS DEVELOPED

In mid-1971, various influential individuals from citizen and government groups recommended to Governor Milliken that a state master plan for environmental education be developed, and suggested why such a plan was needed so urgently. In response, the Governor appointed a broad-based task force to write a comprehensive, long-range plan.

The task force outlined two choices for writing the plan: (1) They could write the document themselves and then sponsor hearings for public reaction. Or, (2) they could sponsor a series of meetings to gain ideas from citizens first, and then write a draft. The first approach would be the more efficient and in fact has been the standard way of handling such matters. The second would be more complex and cumbersome, but also more sensitive to public opinion and needs. The task force agreed upon the latter, reasoning that top priority should be given to the ideas of the people who would be served by the plan and who would be called upon to pay for it and carry it out (Cahn and Passett, 1971; Havelock, 1969; Horn, 1973c; Rettie, 1970; and Wert, 1974).

To obtain the necessary funds to write a comprehensive long-range plan that most nearly reflected the needs of the state (and to employ a professional planning staff), the task force prepared a proposal for federal funding. The task force received a grant which began in June 1972. And close working relationships were established with state officials.

Before the grant was received and a staff employed, however, the task force began to assess the state's current efforts in environmental education, and outlined a tentative list of environmental education goals and subgoals. This list was mailed, along with a questionnaire to assess current programs and needs, to 600 citizens and organizations across the state. Approximately 75 percent of the respondents checked "inadequate" for existing environmental education programs, training programs in environmental education for teachers, citizen involvement in environmental education issues, environmental education facilities, and information dissemination on legislative action. (Details on questionnaire construction and sampling techniques may be found in Moser and Kalton, 1972.) With the results of the questionnaire, a more comprehensive list of environmental education goals and subgoals was drafted.

During June, 1972, the first month of federal funding, four regional meetings were held. Open to the public and widely publicized, the meetings were all-day sessions. "I heard about the meeting on the radio," said a teacher from one of Detroit's high schools, "and I went to find out what the plan was all about. I assumed I would be sitting there hearing experts read long papers. It wasn't that way at all. Instead I found myself having coffee and exchanging ideas with people like me--businessmen, steelworkers, students, other teachers, all kinds of people."

"I really got involved," she continued. "They were asking me questions, about my problems. It was an all-day meeting, but we all had so much to say and the time went so fast that it seemed to last only minutes. I was glad it was Saturday so I could attend" (in Horn, 1973c: 10).

The meetings were designed to give individuals and groups maximum opportunity to be heard (see Strodtbeck, 1973; Horn, 1971a) The meetings centered around small group discussions about tentative environmental education goals and subgoals and the needs and directions of the state. The small group sessions were also directed at determining ways in which each component group might achieve the goals and subgoals, and at identifying key constraints and strategies to overcome the constraints.

Each small group submitted a written report, and all discussions (nearly 300 hours) were taped for later review. Written summaries of recommendations from one regional meeting were brought to the next, so citizens could build on the input of earlier sessions. During this time, additional input was received by mail, systematic research was conducted, and criteria for evaluating the recommendations were written.

All contributions from the four meetings were pulled together into the first draft of a plan. This was then mailed to all participants of the regional discussions and to others who had corresponded with the task force. These citizens were further encouraged to attend a final statewide conference which

was held in the state capitol in July, 1972 (Stapp, 1972). The statewide conference, again widely publicized, gave the task force another opportunity to meet with citizens on a small group basis.

As a result of this conference, and during the following months, many drafts were rewritten in an attempt to make the plan fit the needs of the state precisely. Special meetings were held by many state groups to refine the sections of the plan dealing with them.

Before submitting the plan to the Governor, however, the task force presented the final draft for public review. Copies were sent to libraries throughout the state. Every citizen or group having previous contact with the task force, or having participated in related activities (school workshops, organizational meetings, etc.) in the state, was sent a personal notice that a complete draft was ready for review.

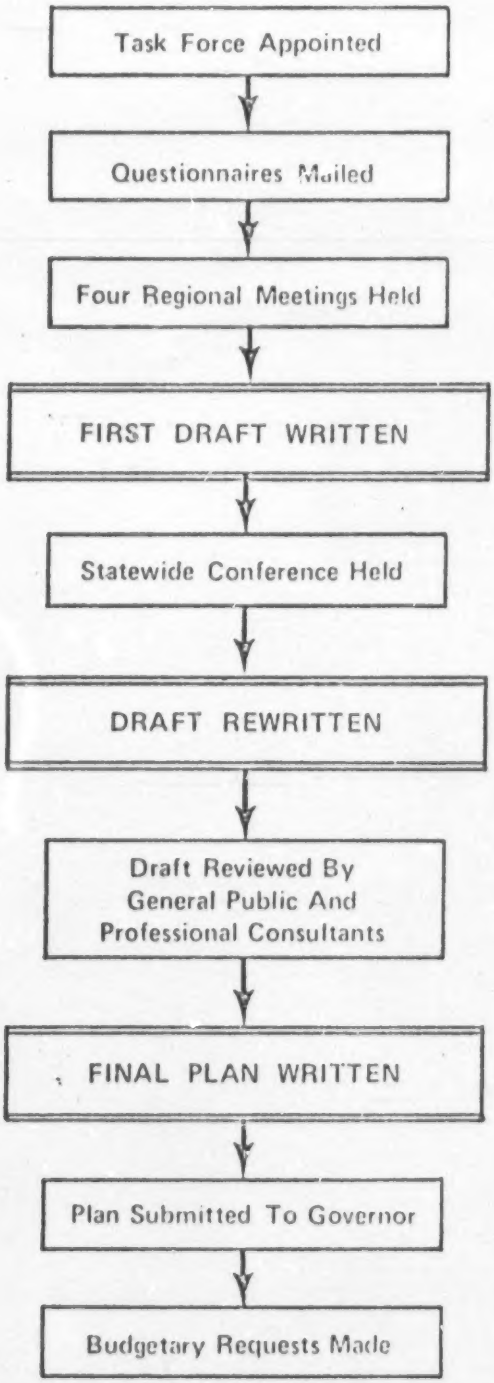
At the same time, the task force identified over 150 professional consultants and reviewers representing many aspects of education and planning, and mailed each of them a copy of the final draft, along with a request for comments.

As a result of this planning process (which is summarized in Figure II) and research, a consensus report was produced.

INSERT FIGURE II HERE

FIGURE II

Steps Used To Develop The Plan



STATEWIDE GOALS[5]

> "Cheshire Puss," she began, rather timidly . . .
> "Would you tell me, please, which way I ought to go from here?"
> "That depends a good deal on where you want to get to," said the cat.
> "I don't much care where--" said Alice.
> "Then it doesn't matter which way you go," said the cat.
>
> --Lewis Carroll (1960: 88)

A clear understanding of goals and subgoals is essential to guide program design, implementation, and evaluation. And the general goals and subgoals must be refined even further than specified below (Commission of Educational Planning, 1972; Hardy, 1972; Horn, 1971b; Hughes, 1965; and Michigan, 1972b). Without such refinement the program designer would have no basis except tradition for selecting strategies, nor would he have any valid and reliable base for checking the effectiveness of his program.

The goals of environmental education in the State of Michigan are to develop in people:

(a) an awareness, understanding, and concern for the environment with its associated problems, and

(b) the knowledge, skill, motivation, and commitment to work toward solutions to these current and projected problems.

A study by Stapp (1973) has shown that at least eleven of the states in the U. S. have agreed on a similar set of general goals. To achieve the above goals, structures and processes (mechanisms) are needed to help individuals and groups reach the following subgoals:

(1) Obtain and understanding that man is an inseparable part of an environmental system and that whatever he does alters his surroundings.

(2) Obtain a basic knowledge of how environmental problems can be solved, and recognize the responsibility of individuals and each segment of society to cooperate in their solution.

(3) Develop thinking and action skills for the prevention and correction of environmental abuses.

OBJECTIVES FOR PLANNING

Objectives are a specific, measurable, but flexible set of ends which can be achieved as a result of the planning process. The objectives of a plan for environmental education, however, should not be confused with the objectives of environmental education itself. "Planning objectives" merely guide efforts to establish the structures and processes through which the objectives of environmental education can be accomplished.

The "objectives of environmental education," on the other hand, would be the kinds of behaviors that an environmentally-minded citizen should demonstrate. A specific listing of these behaviorally stated "performance objectives" of environmental education is usually (but not always) beyond the scope of an overall state master planning report. Each component group of a state usually develops these after a consensus on the statewide goals has been reached. Working consistency is thus maintained between the various layers of goals and objectives (Churchman, 1968; Educational Technology Publications, 1969; Michigan, 1972a; Ackoff, 1970; Hardy, 1972; Sutherland, 1973; and U.S. Government, 1972).

Environmental education planning is but one kind of "democratic social planning" and, therefore, should not be confused with models for "physical planning" or "economic planning." Although these models have similarities, they also have significant differences. Such theoretical considerations and other planning issues (and models) are beyond the scope of

this article but may be found in Braybrooke and Lindblom (1970); Bowen (1973); Elam and Swanson (1969); Ackoff (1970); Etzioni (1967); Friend and Jessop (1969); Jones (1969); Kahn (1969); Levine (1972); Rocchio and Lee (1973); Mayer (1972); Adelson (1967); Morphet and Ryan (1967); Craik (1972); Morris and Binstock (1966); Pile (1974); Sandow, 1973; Albrecht, 1974; and Wert (1974). Mockler (1970) comprehensively reviews 30 studies and books on planning published since 1958. A comprehensive yet lucid theoretic framework is provided by Sutherland (1973). To avoid being locked into any single planning model (formal or not), the planner should periodically review the dilemmas and perceptions discussed by Michael (1973), Krieger (1974), and Rittel and Weber (1973).[6]

The objectives for planning efforts, to which the subparts of a plan contribute, are as follows:

1. To develop a rationale for planning efforts by specifying the purposes, functions, audiences, origins, and implications of a state environmental education plan (see Horn, 1971b, 1972; Environmental Protection Agency, 1973; Stapp, 1972, 1973, 1974; Bennis and others, 1969; Swan, 1971, 1974a; Committee on State Planning, 1959; Michael, 1973, 1974; Self, 1974; Levin, 1974; Morrison and others, 1972; Milbrath and others, 1974; Zapf, 1974; Morrissett and Wiley, 1971; and Wert, 1974).

2. To develop a means by which citizens, individually or collectively, can measurably affect the processes and products of planning efforts (see Cahn and Passett, 1971; Crenson, 1974; Katz and Danet, 1973; Martin and Colburn, 1972; Commission on Educational Planning, 1972; Davies, 1974; Luttbeg, 1968; May, 1971; Borton and Warner, 1974; Gardner, 1974; Smith, 1972; and Wert, 1974).

3. To assess current environmental education efforts in the state through exploratory research (see Moser and Kalton, 1972; and Wert, 1974).

4. To specify in writing a set of statewide environmental education goals (see Hughes, 1965; Ackoff, 1970; Commission on Educational Planning, 1972; Swan, 1974b; and Jordan, 1971).

5. To organize the state's efforts in working toward common environmental education goals by (see Brickell, 1964; Pile, 1974; Pool, 1973; Ackoff, 1970; Churchman, 1968; Educational Technology Publications, 1969; Lyden and Miller, 1972; and Hardy, 1972):

   A. coordinating human resources.

   B. creating and channeling program materials and equipment.

   C. establishing time-tables for implementation of program activities.

   D. providing justification for the allotment of space for program activities.

   E. providing a means of obtaining financial assistance for programs.

   F. establishing the structures and channeling the flow of information to ensure efficient and equitable management of environmental education resources (human, materials, equipment, time, space, and financial).

6. To make recommendations to appropriate groups in order to determine and initiate specific actions that lead to the accomplishment of environmental education goals (see references with step 9, below).

7. To identify and rank environmental education priorities for requesting and allocating the State's current and future environmental education resources (see references with steps 2-4, above).

8. To design ways to evaluate the long-range effectiveness of state environmental education planning efforts (see Horn and others, 1974; Suchman, 1967; Tripodi and others, 1971; Bennett, 1974; Moser and Kalton, 1972; and Weiss, 1972).

9. To write a planning report and design implementation strategies to ensure adoption of its content (see Horn and Rogers, 1975; Havelock, 1969; Rettie, 1970; Rogers, 1973; Rogers with Shoemaker, 1971; Sanders, 1966; Usdan, 1969; Sandman, 1974; Zaltman and others, 1973; Rothman, 1974; Jwaideh and Bhola, 1974; Crowfoot and Chesler, 1974; Fagen, 1966; Rainman and Lippitt, 1971; Milmine, 1974; and Wert, 1974).

PRIORITIES

Because of limited resources, value decisions must be made as to the kinds of programs which should have precedence. These

programs should be further ranked according to relative urgency.

Because societal needs and their relative importance are in constant change, any priority ranking must be considered temporary and subject to revision at any time. A change in priorities, however, should not affect the definition or goals of environmental education, though changes in priorities do affect the placement and design of organizational efforts to achieve them.

Each program proposal for the state should be considered for private, state, federal, or international funding to the extent that it concerns high priority areas and criteria listed in the plan. All proposals, however, should be fully reviewed by the state coordinating body and should be eligible for endorsement or funding. Priority listings are not intended to exclude any worthwhile initiatives.

The following priorities for Michigan are based on human (demographic) environmental education and information needs rather than on physical (geographic) problems, although the two are often closely related:

Priority 1: Programs for urban population to the extent that they:

A. Establish educational planning efforts and processes that can lead directly to community awareness and problem-solving.

B. Develop human resources that can assure on-going local problem-solving and community involvement.

C. Involve citizens who are most directly affected by environmental degradation and its associated problems.

D. Involve citizens who are least organized to correct the environmental problems they endure.

Priority 2: Programs for suburban populations to the extent that they meet the criteria (A-D) listed under Priority 1, above.

Priority 3: Programs for rural populations to the extent that they meet the criteria (A-D) listed under Priority 1, above.

Priority 4: Programs designed to establish statewide leadership training activities (including government and non-government groups) to the extent that they:

A. Are potentially self-perpetuating.

B. Are aimed at highly influential decision-makers and opinion leaders.

C. Potentially affect large populations.

D. Can multiply similar programs throughout other groups.

E. Are aimed at individuals who will have the greatest length of service in decision-making roles.

Priority 5: Programs designed to establish leadership training activities having less than statewide influence to the extent that they meet the criteria (A-E) listed under Priority 4, above.

RECOMMENDATIONS, CONSTRAINTS, STRATEGIES

A recommendation is an idea of what to do to initiate action and develop the machinery to achieve the overall objectives of a state plan. Recommendations are specific, concrete and measurable--that is, one can easily tell whether or not a recommendation has been implemented. They can be evaluated.

Some recommendations can be implemented immediately, but others require additional information, time, and money. Recommendations are like a string of buoys strung along in a pattern through time; in this case, they mark the channel to environmental education goals. Although some gaps between buoys can be filled only through more research and experience, the direction of the channel is nevertheless clear. After all, planning itself is a learning process.

A total of 102 specific recommendations are listed in the Michigan plan. The first seven recommendations apply to the state as a whole; they are intended to provide statewide coordination and integration. The remaining recommendations apply to the specific component groups listed in Figure I. Of all of the recommendations, the state government has the authority to implement only a few. Most recommendations are intended to be implemented voluntarily and cooperatively by private and public groups, organizations, or individuals.

Immediately following each recommendation is the name of the target group (or groups) to which that recommendation should be sent for action. The strategies outlined for Michigan ensure that each recommendation arrives at the appropriate target.

A constraint is a problem or obstacle which, if not overcome, may prevent at least one of the recommendations listed in plan from being carried out. Constraints may be actual or perceived limitations of human and physical resources, time, space, or money, or they may be an undesirable ranking of priorities. They may be limitations in the competencies of people, or difficulties arising from the number or characteristics of target populations. They may be competing interests, or the obsolesence of particular administrative structures, organizations, institutions, or value systems which need to be dealt with before recommendations can be acted upon. The identification of constraints should be as specific as possible so that action may be taken to overcome them.

A strategy is a procedural outline of how to initiate recommendations or overcome constraints. It includes steps which are definite, immediate, specific, and concrete. Their completion is clearly visible. A strategy may also be a sequential list of the actions that a statewide authority takes to permanently structure (that is, institutionalize) environmental education programs into various groups.

The Michigan plan makes explicit a set of recommendations, targets, constraints, and strategies not only for the state as a whole, but also for each component group. To prevent counter-productive activities, it is essential to check carefully the internal consistency among the various parts of the plan, and to check their contribution to the overall goals of the plan. The inter-relationships should be made explicit.

DISTRIBUTION AND EVALUATION

Recommendations must be directed to individuals having power to implement them. Thus, specific persons should be identified, rather than just groups, to whom each recommendation should be sent, but such specification is usually (but not always) beyond the space limitations of a planning report. Only target groups for which recommendations are intended have been listed with each recommendation in the Michigan plan.

There are three major aspects to evaluating the effectiveness of Michigan's plan. The first aspect determines to what extent the recommendations of the plan are adopted (immediate dependent variables). The second aspect determines whether or not citizens of the state are affected by environmental education--that is, whether or not they actually have changed their life-styles to become environmentally sound because of program (ultimate dependent variables). The third aspect ensures that the process of planning for environmental education is continuous and does not end with the planning report (process independent variables). This aspect also ensures that implementation provides for continued citizen involvement. On-going planning processes must include mechanisms for constant citizen input and evaluation. Each aspect of evaluation is further discussed below.

1. Adoption of the State Plan. "The best of plans," James Dowd asserts, "still need good people to translate them into action" (1972: 34). The long-range effectiveness of

planning efforts is severely limited unless members of target groups actually put into practice the actions recommended. It is not enough merely to read the recommendations; they must be studied, evaluated, and acted upon in such a way that they are fully integrated (routinized) into daily activities (see Zaltman and others, 1973). They must be fully adopted or other alternatives leading toward the same ends must be fully adopted before the plan can be judged successful.

One purpose of planning is to devise a route, or alternative routes, leading to clear changes. Evaluation of the communication phase of planning should therefore focus not on the number of copies of the final report distributed to the general public (sometimes called the "error of message volume"), but rather on the number of individuals or groups who take action as a consequence of having been exposed to the plan. Thus, this evaluative focus is upon the plan's first-order effects.

Researchers are available to study and determine the effect the plan has over a period of time. Full adoption of the plan--or adoption of activities consistent with the purposes of the plan--usually involves a step by step process. Researchers have divided this process into phases (functions) in which individuals (Rogers with Shoemaker, 1971):

(1) become aware of the plan, and gain some understanding of its goals and functions,

(2) form favorable attitudes toward the plan,

(3) participate in actions that provide a choice to adopt the recommendations of the plan, or

other alternative recommendations which lead to the same goals, and

(4) seek support and reinforcement for their choices.

The value of developing a supporting and reinforcing social climate for change efforts cannot be overstressed. Without such reinforcement, even current programs may dwindle. Institutional arrangements that foster innovativeness and that follow through to ensure the initial implementation of a new program are vital.

To ensure full adoption that lasts over time, curricular or communications designers must plan for each phase of the adoption process--because each phase demands a different mix of communication strategies and media (Rogers with Shoemaker, 1971; Zaltman and others, 1973; Sandman, 1974; and Rogers, 1973).

The above phases are for the voluntary adoption of innovations by individuals. Formal organizations (or other units of adoption), however, are a special case, and the phases must be revised to accommodate authority and collective decisions. Such modifications may be found in Rogers with Shoemaker (1971); Zaltman and others (1973); Havelock (1969); and Wayland (1964). Also, see Crowfoot (1972; 1971); Michael (1973); Jones (1969); Levin (1974); Jwaideh and Bhola (1974); and Morphet and Ryan (1967) for important organizational concepts, constraints, and issues.

Researchers who evaluate the effectiveness of the plan must also consider each phase of the adoption process. While some individuals or groups adopt new ideas almost immediately, most people need a longer period of time (say, 1-3 years), and still others need considerably longer (possibly 5-10 years).

Within the total population, the adoption of a new idea is usually slow at first, then accelerates, and finally begins to taper off, as shown in Figure III.

INSERT FIGURE III HERE

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2. Evaluation of Program Effectiveness. It is useful for leaders from each component group (see Figure I) to step back and discover occasionally the extent to which environmental communication, education, and information programs are effective. It is the responsibility of each component group to know whether or not monies are well spent. Each group must be accountable to its donors and supporters, and to itself, for program effectiveness or lack of effectiveness. Evaluative reports should attempt to describe the environmental literacy levels (ends) of groups of citizens rather than just report the activities (means) of an organization or agency.

The State of Michigan (1972b) has designed a systematic way of evaluating effectiveness and improving a program. This accountability system may be applied to almost any educational program, whether in business and industry, higher education, youth groups, or other components. The system has been divided into six broad phases, although each phase necessarily influences (interacts) and partially overlaps with every other phase (see Figure IV):

INSERT FIGURE IV HERE

FIGURE III

ADOPTION OF THE PLAN'S RECOMMENDATIONS TAKES MORE TIME FOR SOME PEOPLE THAN OTHERS

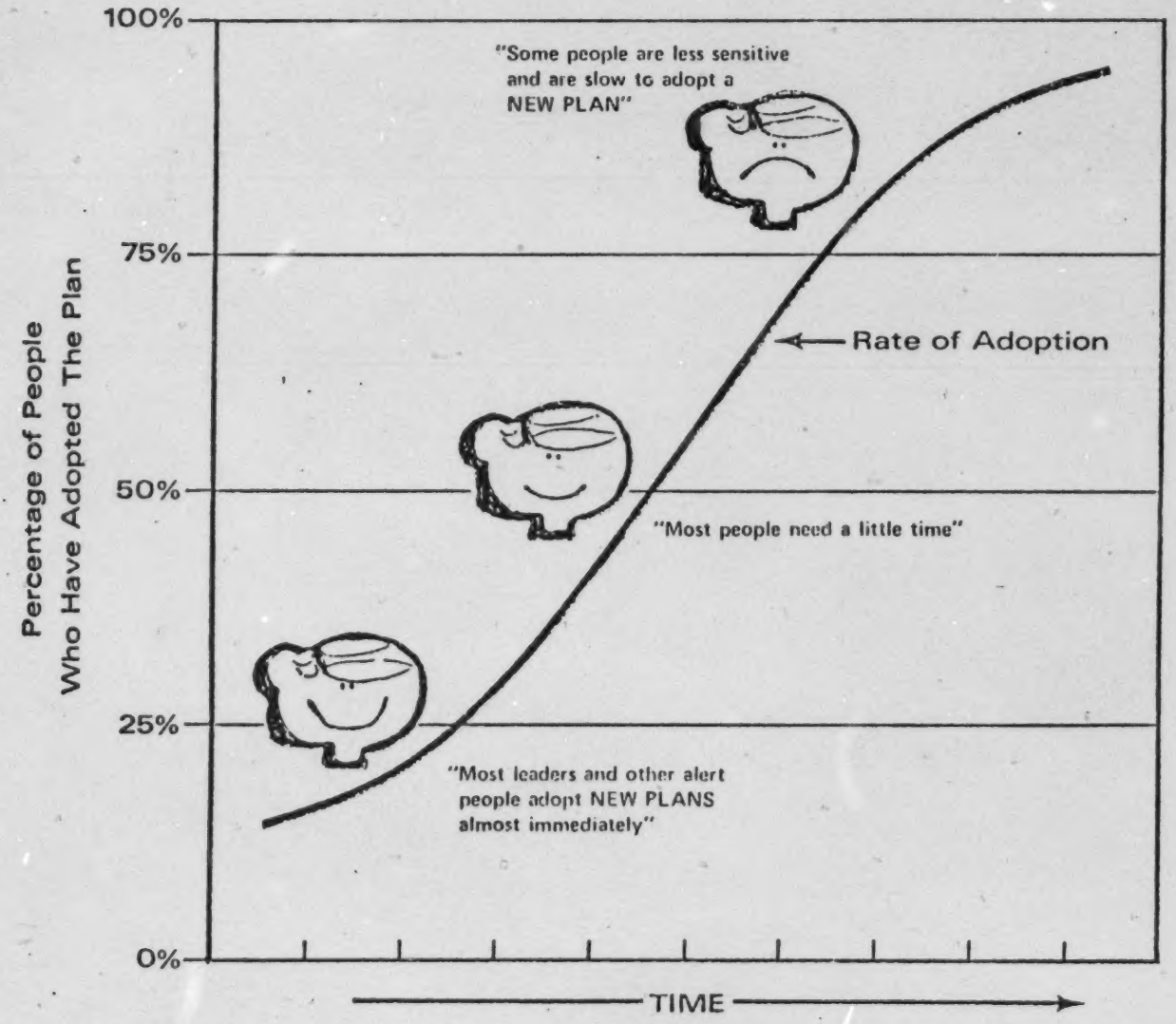

FIGURE IV

BUILDING ACCOUNTABILITY INTO THE ENVIRONMENTAL EDUCATION SYSTEM

I Common Goals

II Performance Objectives

III Needs Assessment

IV Delivery Systems Analysis

V Evaluation & Testing

VI Recommendations for Improvements

(1) GOALS: This includes the identification, discussion and dissemination of common environmental communication, education, and information goals.

(2) PERFORMANCE OBJECTIVES: These are, by consensus of the component group or by definition, the things people are supposed to do voluntarily as a result of being exposed to a program. These objectives should be consistent with the general goals of environmental education. (If the construction, use, and limitations of performance objectives are unfamiliar to you, then the following should prove useful: agency administrators, etc., see Suchman, 1967; classroom teachers, youth leaders, school principals, general public, etc., see Mager, 1972, or Michigan, n.d.; higher education, educational media designers, etc., see Kapfer, 1971.)

(3) NEEDS ASSESSMENT: After identifying the general goals for environmental communication, education, and information and identifying performance objectives appropriate for each component group, unmet needs should be assessed.

(4) DELIVERY SYSTEM: Based on a needs assessment, plans are made to invent new programs or to change current ones to achieve performance objectives.

(5) TESTING AND EVALUATION: To determine if a new or revised program does what it is supposed to do, reliable and valid information must be gathered. Formal research methods must be applied, and the results should be communicated to help allocate future expenditures.

(6) RECOMMENDATIONS: Based on the above steps, new policies and programs are initiated, current ones maintained, and ineffective programs phased out. The entire process then begins once again by redefining or confirming the general goals and recycling the appropriate steps of the accountability process.

Without an evaluative system, program directors cannot tell whether or not program activities are aimed at the intended goals and objectives. Without a feedback system, well intended funds may actually be contributing to counter-productive activities.

3. Evaluation as an On-Going Process. "Everyone can participate in government if that government is organized to encourage participation," accurately observed Arthur and Stephanie Pearl (1971:38). Thus, the third and final aspect of evaluation ensures that the written state plan is periodically updated and that programs initiated by the plan remain in the public's eye. Continuous public review is essential to effective planning and implementation efforts.

The Michigan plan provides for continuous review through a citizens advisory board. In addition, formal systems should be designed within each component to encourage citizen participation. It is, however, advantageous to conduct a large-scale and comprehensive evaluation to ensure that the proper alternatives have been selected and that scarce resources are being allocated to the most pressing needs. A large-scale evaluative research model

has been developed specifically for the Michigan plan (see Horn and others, 1974). Criteria for evaluating planning documents per se have been developed by Horn (1973b). A formal evaluation procedure can help ensure equitable distribution of environmental education resources across the state, and from group to group.

Since careful review depends upon adequate information, the needed research takes preparation, trained researchers, and substantial financial support. For a formal short-range review (as is proposed in the Michigan plan), a five-year period is usually necessary. Such a five-year feedback and evaluation cycle is outlined in Figure V.

INSERT FIGURE V HERE

The purpose of this research design is to ensure feedback on the adoption of the plan, so that all citizens can judge how efficiently and equitably the goals and objectives are being reached in order to justify continuing expenditures.

A formal feedback and evaluation process should be integrated into each component group and into each phase of the state planning process to ensure accountability for all efforts supported by citizens and to improve our decision-making capability. And we must learn to design systems that have a built-in capability of responsiveness to changing social as well as biophysical environments. Perhaps, at this point in time, the greatest need is for the kind of planning that can teach us how to learn to be continuously adaptive.

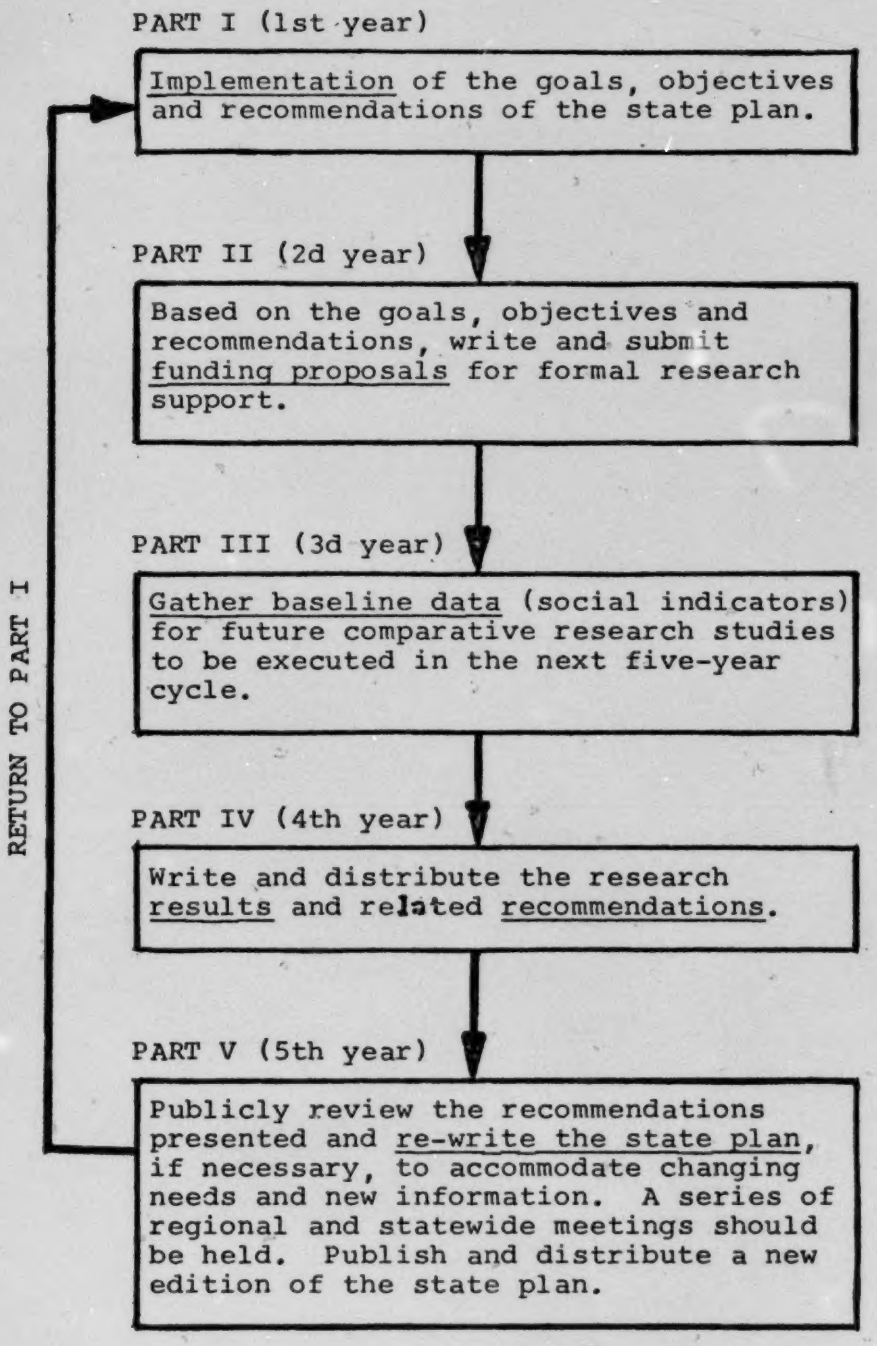
PART I (1st year)
Implementation of the goals, objectives and recommendations of the state plan.
PART II (2d year)
Based on the goals, objectives and recommendations, write and submit funding proposals for formal research support.
PART III (3d year)
Gather baseline data (social indicators) for future comparative research studies to be executed in the next five-year cycle.
PART IV (4th year)
Write and distribute the research results and related recommendations.
PART V (5th year)
Publicly review the recommendations presented and re-write the state plan, if necessary, to accommodate changing needs and new information. A series of regional and statewide meetings should be held. Publish and distribute a new edition of the state plan.
RETURN TO PART I

FIGURE V

MICHIGAN'S FIVE-YEAR FEEDBACK AND EVALUATION CYCLE

SUMMARY

An organic planning model attempts to fit the parts of society back together. An organic planning model has many characteristics comparable to the natural growth and adaptive mechanisms of living organisms. This means, for example, that it functions as a holistic system, as a Gestalt; that it is always changing yet functionally structured and systematic; that it is always open and responsive to environmental variations (social and otherwise); and that it is cybernetic, self-renewing, but cannot be finalized.

When a plan has been finalized, this is in itself an indicator that it has ceased to be sensitive to changing conditions and is therefore obsolete. Finalization means termination. Planning does not have an "end"; it does not terminate. Planning is a heuristic "process"--a process of continuously learning how to plan better. The six major characteristics of the Michigan planning process are summarized below.

1. The plan looks at all groups and attempts to coordinate their environmental communication, education, and information programs. The groups having major opportunities and program responsibilities are shown in Figure I. The plan lists separate recommendations for each of these groups, and lists some recommendations for all groups.

2. The plan is long-range. It does little good to solve problems if they return next year. Our past failures

to make long-range plans are characterized by a cartoon of a man painting himself into a corner, sawing off a limb he is sitting on, or running out of space on a sign he is painting. Michigan's plan deals not only with the here and now, but also with preparing people to solve yet unknown problems. It is better to learn how to solve a full range of problems than to find the solution to just one. ("Give a man a fish and he will eat for one day. Teach him how to fish and he will eat for a lifetime. Teach him how to manage a fish's environment and his children and grandchildren will eat too," says Michigan's plan.)

3. The plan has a "grass roots" foundation. A series of small-group discussions at public meetings gathered ideas from all regions of the state before the first draft was written. These ideas form the plan's core. They reflect what citizens want. Unlike many such documents, the recommendations originated from the people to be served by the plan, the people who have to carry them out.

4. The plan has a built-in flexibility and sensitivity to changing needs. The plan calls for on-going citizen evaluation through a citizens advisory board, and through statewide public meetings. Every five years, after new research has been conducted, an up-dated edition of the plan should be issued. Thus, the process of planning is conceptualized as an on-going way of life--not just a single event.

5. The plan suggests priorities for distributing environmental education funds. The priorities are based on the environmental education and information needs of people rather than on

physical regions of the state. The people who are currently the least organized to solve environmental problems, and who suffer the most from environmental abuses, receive the highest priority. No program possibility, however, is excluded.

6. The plan recommends the establishment of a state environmental education council and a citizens advisory board to centralize and coordinate all statewide environmental communication, education, and information programs.[7] This planning and coordination encompasses all groups listed in Figure I and specifically coordinates programs with the State Department of Education.

Although highly significant, elementary and secondary school programs are but a part of a comprehensive state plan. Thus, the state council would be concerned with environmental education in the broadest sense, as well as formal schooling. The council would coordinate environmental education and information programs in cooperation with the State Department of Education, and programs outside the current activities of the Department.

The complete planning report, Michigan's Environmental Future, (1) spells out the underlying values upon which the planning activities were based and (2) signals current problems and efforts. The report also (3) tells how the plan was developed and details (4) goals and (5) priorities.

For each major component (listed in Figure I), (6) recommendations are listed, (7) targets and (8) constraints identified,

and (9) strategies suggested. Guidelines on (10) how to distribute and evaluate the plan are also provided. And a complete (11) glossary, which defines general terms, is presented at the end of the report.

It is our conviction that the "approximate" attainment of a conceptually sound and ideal plan is better than the "exact" attainment of a plan that is inconsistent with many of the basic principles underlying sound environmental education and planning.

Full implementation of the plan will ideally develop lifestyles that lead to:

(1) support for personal, group and organizational policies designed to maintain or improve environmental and human quality;

(2) rejection of personal, group and organizational policies that are harmful to the environment; and

(3) change in the attitudes and behaviors that create environmental problems.

"If this is the vision of the future," challenges Robert F. Kennedy, "if this is the direction in which we want to move--the next thing we must consider is how we propose to get there, and what obstacles lie in our path. For such a vision is never self-fulfilling. We cannot stand idly by and expect our dreams to come true under their own power" (in Wortman and Rhodes, 1969: 51-53, emphasis added). This is both the promise and the future of systematic planning for environmental communication and education. We will only gain insight into the way the world works and begin to develop adaptive behavioral systems when all the parts of society are systematically fitted back together. That is what a plan should do.

NOTES

1. An environmentally literate citizen is a person who is knowledgeable about the biophysical environment and its associated problems, aware of how to help solve these problems, and motivated to work toward their solution (Michigan, 1973).

2. To the authors' knowledge, thirty-three states are currently involved in state master planning for environmental education. Unfortunately, only a few plans have been, or are being, systematically developed. It is the hope of these authors and of others that the model and references presented here will provide a springboard for further discussion and will provide access to current research findings unknown to many educational planners. Single copies of Michigan's Environmental Future: A Master Plan for Environmental Education are available from the Governor's Environmental Education Task Force, Executive Office of the Governor, Capitol Building, Lansing, MI 48903.

3. A program is defined as an aggregate of specific activities that lead to a set of clearly definable products or ends. Communication means the process of transmitting a message from a source to an audience via a channel. Education is defined as the aggregate of all the processes by means of which a person develops abilities, attitudes, and other forms of behavior of positive value in the social system in which he lives (the term is not restricted to formal schooling). Information means facts told, read, or communicated which may be unorganized and even unrelated. (Michigan, 1973)

4. For access to the international aspects of educational planning, see Educational Planning: A Bibliography (UNESCO: IIEP, 1964) plus approximately 40 other planning resources, all available through the UNESCO Publications Center, Division of Unipub, Box 433, Murray Hill Station, New York, NY 10016.

5. The key conceptual terms used in this section are defined as follows (Michigan, 1973): Awareness--consciousness of a situation or object, without direct attention to it or definite knowledge of its nature. Commitment--an overt (written, spoken, demonstrated, etc.) indication or affirmation to others publicly that one has the interest, the feeling of a need, and the willingness to act out a specific function relative to some problem. Concern (environmental)--any dissatisfying perception of, and/or feeling toward, the environment held by an individual, group, organization, society, or culture which frequently motivates them to address that dissatisfaction with some form of action. Environment, Biophysical--the synergistic sum of the biological (living), chemical, and physical (non-living) influences upon an organism (plant or animal). Environment, Total--the synergistic sum of all influences upon an organism (plant or animal). For man, this includes all biological, chemical, physical, social, psychological, economic, philosophical, esthetic, and unknown surroundings. Environmental Problem--a perceived dissatisfaction with a condition or state of any or all parts of the total human environment. Environmental Solution--a perceived satisfaction with the consequences of a completed course of action which

has led to a certain state or condition of any or all parts of the total human environment. What is called a "solution" may vary from the real to the imaginary, from the immediate to the long-term, from local to global, or from person to person. Environmental problem-solving should ideally aim toward solutions which are scientifically real, long-term, global, and satisfying to a maximum number of people affected by the problem. Goal--a direction toward some abstract end which is used to guide program design, implementation, and evaluation. A goal is derived directly from what one believes. It is broad, all-encompassing, and usually not as specific as an objective. A goal is difficult to measure directly; its attainment is usually inferred from the attainment of a number of subordinate, specific objectives. Knowledge--an organized body of information, or the comprehension and understanding consequent on having acquired and organized a body of facts. Motivation--a general term referring to energizing states of the human organism which direct it toward goals. Process--the on-going dynamic state of a series of systematic steps by which a goal is attained; the continuous state of some entity that does whatever is appropriate to achieve the goals of a system. Skill--a mental or physical ability to do something with ease and precision in a variety of similar situations. Strategy--a definite, immediate, specific, and concrete way to overcome a constraint, put a recommendation into practice, or achieve an objective. A strategy is often a sequential series of statements of desired happenings. Understand--to be thoroughly familiar with the ideas, concepts, and principles

associated with a notion, and to be able to apply these ideas, concepts, and principles in a variety of similar situations.

6. Individuals or groups unfamiliar with contemporary problems and perspectives of state-level planning for communication, information, and education programs, might find it useful to peruse the bibliographic resources listed herein, compiling a list of guiding principles that are appropriate (1) for each planning objective, (2) for integrating the objectives, and (3) for interfacing the planning system with the unique characteristics of each kind of public within the state.

7. At the writing of this article, a state environmental education council has in fact been appointed, and implementation of the plan is in process. Funding is currently being sought to rigorously monitor the implementation process and its effects. The major research questions being asked are: (1) What factors inhibit the utilization of the knowledge generated by Michigan's state planning efforts? (2) What factors facilitate the utilization of the knowledge generated by Michigan's state planning efforts? And (3) what communication strategies influence various utilization patterns? The design encompasses a three-year field-experiment (Horn and others, 1974).

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